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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/674,757	09/30/2003	Leon A. Leonard	1	4220
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AGERE SYSTEMS INC. FOUR CONNELL DRIVE BERKELEY HEIGHTS, NJ 07922-2747			EXAMINER TRINH, MICHAEL MANH	
			ART UNIT 2822	PAPER NUMBER

DATE MAILED: 06/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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**Office Action Summary**

Application No.

10/674,757

Applicant(s)

LEONARD, LEON A.

Examiner

Michael Trinh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 March 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 (renumbered claims) is/are pending in the application.
- 4a) Of the above claim(s) 16-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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## **DETAILED ACTION**

\*\*\* This office action is in response to filing of the application on September 30, 2003.

\*\*\* Since there are two sets of claims 7-9, under 37 CFR 126, claims 1-6,7-9,7-9,10-20 are renumbered as claims 1-23, respectively. Accordingly, method numbered claims 1-15 are constructively elected, with traverse. Apparatus claims 16-23 are non-elected.

### ***Election/Restrictions***

1. Applicant's election filed of Group I, method claims 1-15 (renumbered) in Paper mail dated March 21, 2005 is acknowledged. The traversal is on the ground(s) that "...it is incorrect to assert that the apparatus can be used to practice another materially different process...". This is not found persuasive because the apparatus can be used to practice another materially different process such as spraying water or air instead of providing a flow of photoresist or solvent. Additionally, the apparatus can be used to practice another materially different process such as operating the valve to dispense a solvent then send a photoresist. Furthermore, the process as claimed can be practiced by another different apparatus such as manually wiping the nozzle.

The requirement is still deemed proper and is therefore made FINAL.

2. Apparatus Claims 16-23 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention.

### ***Claim Rejections - 35 USC § 112***

3. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Meaning and scope of "fewer than few minutes to more than sixty minutes" are unclear and indefinite for how much of "few". Moreover, "fewer than few minutes to more than sixty minutes" is unclear as it is read on any time.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

5. Claims 1-3,6-8,10-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Kitano et al (2002/0124798).

Kitano teaches a method for manufacturing microelectronic devices comprising at least: providing a photo resist coater tool of the type having a coater plate 224 (Fig 10; paragraph 99) and a nozzle (85 in Fig 8; 206 in Figs 10 and 18; paragraphs 78-96) connected to a fluid flow line, with the nozzle 85 positionable over the coater plate; providing a valve assembly positioned in the flow line to control flow between at least two fluid inputs 90c,94 and the nozzle, positioning a wafer (W) on the coater plate; operating the valve assembly by controlling from the controller to dispense photo resist from the first of the fluid inputs 90c and through the nozzle 85 onto a wafer; operating the valve assembly to stop the flow of photo resist, and operating the valve assembly to send a solvent from a second of the fluid inputs through the flow line 94 (paragraphs 81-84; Figs 4-9) and nozzle to reduce coagulation of the photo resist in or about the nozzle 85. Re claim 2, wherein the step of sending solvent through the nozzle includes positioning the nozzle over a solvent drain 267 (paragraphs 138-140; Fig 18). Re claim 3, wherein the step of sending solvent through the nozzle only occurs when the flow of photo resist through the nozzle has ceased and stopped for a pre-determined period of time for cleaning by operating the controller (paragraphs 81-84; Figs 4-9,18). Re claim 5, insofar as understood, wherein period of time for providing from one wafer to another wafer is taken from fewer than ten minutes to more than sixty minutes as it is inherent for any period time from one wafer to another wafer. Re claim 6, wherein the nozzle 85 is permitted to again dispense photo resist to another wafer prior to sending the solvent through the nozzle (Figs 1-2,4-9,18; paragraphs 47-

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62;81-84). Re claim 7, wherein the nozzle 206,85 is positioned over a solvent drain 267 prior to the step of operating the valve assembly to send a solvent from a second of the fluid inputs through the flow line and nozzle. Re claim 8, wherein the valve assembly 97 includes a three-way valve (Figs 6-9; paragraphs 78-84). Re claim 10, wherein the step of sending solvent from a second fluid input 94 includes flushing the solvent through the nozzle 85 (Figs 8-9; paragraphs 81-84). Re claim 11, wherein by providing the photoresist to another subsequent wafer, the controller is operated of the valve assembly to send photo resist through the nozzle 85 in order to clear the nozzle of solvent prior to again dispensing photo resist (Figs 4-9, paragraphs 81-84). Re claim 12, wherein the steps of operating the valve assembly to stop the flow of photo resist and send solvent from a second of the fluid inputs is sequenced with a controller "C" (Figs 9,18' paragraphs 78-86;138-142). Re claim 13, wherein the step of positioning the nozzle 206,85 over a solvent drain 267 is performed by rotating the nozzle 206 about an axis to move from a production position over the coater plate to an idle position over the solvent drain 267 (Fig 9,10,18, paragraphs 89-99;138-142). Re claim 14, wherein the step of operating the valve assembly to dispense photo resist from the first of the fluid inputs 90c further includes activating a photo resist pump (P1-P3; 277 in Fig 18; 123 in Fig 9; paragraphs 138-145) and the step of operating the valve assembly to send solvent from the second of the fluid inputs further includes activating a solvent pump (123 in Fig 9; 277 in Fig 18). Re claim 15, wherein the photo resist pump and the solvent pump are activated by a pump controller (123 in Fig 9; 208 in Fig 13,18).

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

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evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

7. Claim 4,5,9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitano et al (2002/0124798) taken with Applicant's admitted prior art (present specification, paragraphs 2-8).

Kitano teaches a method for manufacturing microelectronic devices as applied to claims 1-3,6-8,10-15 above.

Re claim 9, Kitano already teaches the solvent, but lacks mentioning the solvent selected from the group consisting of as in claim 9, such as, Propylene Glycol Monomethyl Ether Acetate (PGMEA), Propylene Glycol Monomethyl Ether (PGME), etc. Re claims 4-5, Kitano lacks mentioning the stopping or ceasing time period of thirty minutes (claim 4) or ranging from about ten minutes to sixty minutes (claim 5, assume "fewer" and "more than" as meaning of "about").

However, re claim 9, Applicant's admitted prior art teaches (at paragraph 6) the solvent is taken from the group consisting of Propylene Glycol Monomethyl Ether Acetate (PGMEA), Propylene Glycol Monomethyl Ether (PGME), N-butyl Acetate, Acetone, Cyclohexnone, Ethyl Lactate, N-Methyl Pyrrolidone (NMP) (1-methyl, 2-Pyrrolidinone), Tetrahydrofuran (THF), and Methyl Amyl Keytone.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to manufacturing the electronic device of Kitano by using the solvent selected from the group consisting of Propylene Glycol Monomethyl Ether Acetate (PGMEA), Propylene Glycol Monomethyl Ether (PGME), N-butyl Acetate, Acetone, Cyclohexnone, Ethyl Lactate, N-Methyl Pyrrolidone (NMP) (1-methyl, 2-Pyrrolidinone), Tetrahydrofuran (THF), and Methyl Amyl Keytone, as taught by Applicant's admitted prior art. This is because these alternative solvents are excellent chemical for effectively removing a photoresist material so as to prevent photoresist build up. Re claims 4-5, the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made to determine a range of time period between the process for cleaning, in the range of fewer than few minutes to

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more than sixty minutes (re claim 5, assume about few minutes to sixty minutes) or thirty minutes as in claim 4, has been held to be obvious to select a value in a known range by optimization for the best results, and would be an unpatentable modification, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation" so that the cleaning step can be effectively performed. *In Re Aller* 104 USPQ 233,255 (CCPA 1955); *In re Waite* 77 USPQ 586 (CCPA 1948); *In Re Swanson* 56 USPQ 372 (CCPA 1942); *In Re Sola* 25 USPQ 433 (CCPA 1935); and *In Re Dreyfus* 24 USPQ 52 (CCPA 1934).

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael M. Trinh whose telephone number is (571) 272-1847. The examiner can normally be reached on M-F: 8:30 Am to 5:00 Pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on (571) 272-1852. The fax phone number is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application should be directed to the receptionist whose telephone number is (703) 308-0956.

Oacs-16



Michael Trinh  
Primary Examiner